

Reimbursable Cost Guidelines

Table of Contents 1 Aquifer Pumping Test 2 3 Equipment and Supplies Excavation Ground Water Extraction and Treatment System 11 Ground Water Extraction and Treatment System 12 14 Laboratory Analysis 16 Miscellaneous 17 Groundwater Monitoring and Reporting (Quarterly/Semi-Annually) ... 18 Groundwater Monitoring and Reporting (Annual) 19 20 22 Personnel/Qualifications & Task Description 23 Corrective (Remedial) Action Plan Preparation 29 Site Assessment 30 32 34 35 Soil Vapor Extraction System 36 Tank Removal Performed Prior to March 12, 1993 37 Tank Removal Performed on or after March 12, 1993 40 Waste Hauling and Disposal 41 Waste Treatment 42

The objective of this document is to provide guidance for the evaluation of costs incurred in the performance of corrective action activities associated with LPST sites. The guidelines are not intended to set pricing for certain activities or remove an element of competition for the petroleum storage tank industry. Rather, the guidelines are intended to allow for a range of costs that will not be static, but which can be as dynamic as necessary to support and enhance competition.

These cost guidelines were established to provide a range of cost s within which the TWC will reimburse for certain corrective action activities. Only the costs that are at or below the published values in this document will be reimbursed unless a justification for cost s exceeding the guidelines are submitted for TWC review to determine if those costs are allowable.

The Reimbursable Cost Guidelines will be utilized by the TWC to evaluate and process all reimbursement claims for corrective action activities associated with LPST sites, unles s otherwise provided by TWC policy or rules in effect at the time the a ctivities were performed.

The Below Guidelines show the length of the test as well as summarize the titles of personnel who may be present during the test and provide a general description of the work bein g performed. The length of the test is usually 12 hours.

Personnel - 12 hour test

Title	Duty	Hours	Average Rate/Hr.	Maximum. Allowable Rate/Hr.	Total Average Cost	Maximum Allowable
Project Manager Technician II	Report/Review Field/Report Rev. Field Report/Review Report/Review	4 28 16 6 4	\$85.00 \$70.00 \$40.00 \$40.00 \$30.00	\$95.00 \$80.00 \$45.00 \$45.00 \$35.00	\$340.00 \$1,960.00 \$640.00 \$240.00 \$120.00	\$380.00 \$2,240.00 \$720.00 \$270.00 \$140.00 \$3,750.00

Personnel - 24 hour test

Title	Duty	Hours	Average Rate/Hr.	Maximum Allowable Rate/Hr.	Total Average Cost	Maximum Allowable
Project Manager Technician II Draft-Person I	Report/Review Field/Report Rev. Field Report/Review Report/Review	4 41 28 8 4 	\$85.00 \$70.00 \$40.00 \$40.00 \$30.00	\$95.00 \$80.00 \$45.00 \$45.00 \$35.00	\$340.00 \$2,870.00 \$1,120.00 \$320.00 \$120.00 \$4,770.00	\$380.00 \$3,280.00 \$1,260.00 \$360.00 \$140.00 \$5,420.00

General Equipment Used and Rental Rate

Equipment	Quantity	Rate/Each	12 Hr. Test Total	24 Hr. Test Total
Submersible Pump or Pneumatic Pump Data Logger Interface Probe Generator Air Stripper Equipment Vehicle Carbon Canister Storage Tank Miscellaneous Sub Total	1 1 1 2 1 1 2 1 3 1	\$20.00 \$75.00 \$125.00 \$40.00 \$75.00 \$250.00 \$45.00 \$500.00 \$100.00 \$50.00	\$75.00 \$125.00 \$80.00 \$75.00 \$250.00 \$90.00 \$500.00 \$500.00 \$50.00	\$150.00 \$250.00 \$160.00 \$150.00 \$500.00 \$180.00 \$1,000.00 \$600.00 \$100.00

		12 Hr. Test	24 Hr. Test
Summary (for task) Allowable Cost	Personnel Equipment	\$3,300.00 \$1,545.00	\$4,770.00 \$3,090.00
	Total	\$4,845.00	\$7,860.00

Note: Laboratory analysis, waste disposal and travel cost are not included in the above costs.

Operator

Costs shown are without an operator unless otherwise stated.

Lease/Purchase

The responsible party will be reimbursed based on the most economically efficient method of obtaining equipment. Equipment system purchase will be reimbursed over the estimated life of the remediation project. Contact the PST Coordinator if assistance is needed in evaluating a lease/purchase option.

Information should be included within the application for reimbursement which provide s adequate justification for the decision. Lease agreements should be included in the application for reimbursement.

Remediation System Equipment

Equipment purchased as part of a remediation system will be reimbursed over the estimated life of the project.

Rental Equipment

The total reimbursable cost for rental equipment will not exceed the purchase price for all equipment. The responsible party has an obligation to use the most economically efficient method of remediating a site.

Equipment	Size/Description	Rental Price Average	Rental Price Maximum	Purchase Price Av.	Purchase Price Max.
Absorbent Booms	4" x 36" - Each	N/A	N/A	\$5.00	\$8.00
Absorbent Booms	6" x 10' - Each	N/A	N/A	\$30.00	\$38.00
Absorbent Booms	8" x 10' - Each	N/A	N/A	\$40.00	\$50.00
Aeration Trays	Each Month	\$100.00	\$150.00	N/A	N/A
Air Compressor	3/4 HP - Per Day	\$ 15.00	\$ 20.00	N/A	N/A
Air Compressor	3/4 HP - Per Week	\$ 70.00	\$ 80.00	N/A	N/A
Air Compressor	3/4 HP - Per Month	\$200.00	\$240.00	N/A	N/A
Air Compressor	2 HP - Per Day	\$ 20.00	\$ 25.00	N/A	N/A
Air Compressor	2 HP - Per Week	\$ 75.00	\$100.00	N/A	N/A
Air Compressor	2 HP - Per Month	\$250.00	\$300.00	N/A	N/A
Air Compressor	5 HP - Per Day	\$20.00	\$30.00	N/A	N/A
Air Compressor	5 HP - Per Week	\$100.00	\$120.00	N/A	N/A
Air Compressor	5 HP - Per Month	\$300.00	\$360.00	N/A	N/A
A C w/Jackhammer	150 CFM- Per Day	\$85.00	\$110.00	N/A	N/A
A C w/Jackhammer	150 CFM- Per Week	\$325.00	\$400.00	N/A	N/A
A C w/Jackhammer	150 CFM- Per Month	\$950.00	\$975.00	N/A	N/A
Air Stripper	10 GPM/Per Month	\$625.00	\$1,200.00	\$15,250.0	\$20.750.00
Air Stripper	1'Tower- Per Week	\$600.00	\$845.00	N/A	N/A
Air Stripper Air Stripper	1 Tower- Per Week 1 Tower- Per Month	\$1,250.00	\$1,660.00	N/A N/A	N/A
Air Stripper	2'Tower- Per Week	\$750.00	\$1,180.00	N/A N/A	N/A N/A
	2'Tower- Per Month	\$2.000.00	\$2.375.00	N/A N/A	N/A N/A
Air Stripper	3'Tower- Per Week	\$1,250.00		N/A N/A	N/A N/A
Air Stripper			\$1,620.00		
Air Stripper	3'Tower- Per Month	\$2,225.00	\$2,960.00	N/A	N/A
Air Stripper - 25 gpm Air Stripper - 25 gpm	Each Per Month Maintenance Ea/Month	\$1,150.00 \$575.00	\$1,150.00 \$575.00	N/A N/A	N/A N/A
	D 1D 04''	φο 25	Φ0.25	37/4	NT/A
Automobile Mileage	Personal Per/Mile	\$0.35	\$0.35	N/A	N/A
Automobile Mileage	Rental Per Day	\$34.00	\$50.00	N/A	N/A
Backhoe-Light Duty HP 51-62; Dig Depth 12'-18'6"	Per Day	\$175.00	\$200.00	N/A	N/A
Backhoe-Light Duty	Per Week	\$485.00	\$560.00	N/A	N/A
Backhoe-Light Duty	Per Month	\$1,450.00	\$1,600.00	N/A	N/A
Backhoe-Medium Duty HP 63775;Dig Depth 14"-19'8"	Per Day	\$215.00	\$250.00	N/A	N/A
Backhoe-Medium Duty	Per Week	\$620.00	\$650.00	N/A	N/A
Backhoe-Medium Duty	Per Month	\$1,700.00	\$1,750.00	N/A	N/A
Backhoe-Medium/Heavy Hp 77-90;Dig Depth 16'-19'9"	Per Day	\$250.00	\$275.00	N/A	N/A
Backhoe-Medium/Heavy	Per Week	\$700.00	\$750.00	N/A	N/A
Backhoe-Medium/Heavy	Per Month	\$2,075.00	\$2,150.00	N/A	N/A
Backhoe-Heavy Duty HP 95-115;Dig Dp 17'10"-21'5"	Per Day	\$300.00	\$350.00	N/A	N/A
Backhoe Heavy Duty	Per Week	\$950.00	\$1,000.00	N/A	N/A
Backhoe Heavy Duty	Per Month	\$2,825.00	\$2,900.00	N/A	N/A
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Equipment	Size/Description	Rental Average	Rental Maximum	Purchase Average	Purchase Max.
Barricades Barricades	Each Per Day Each Per Day- Lighted	\$1.00 \$1.50	\$1.00 \$1.50	N/A N/A	N/A N/A
Bentonite Pellets	50 Pounds (lbs)	N/A	N/A	\$45.00	\$57.00
Camera Rental	N/A	N/A	N/A	N/A	N/A
Film Developing		N/A	N/A	At Cost	At Cost
Carbon Canister	Each	N/A	N/A	500.00	\$650.00
Combustible Gas Meter	Each Per Day	\$25.00	\$40.00	N/A	N/A
Computer/Time Rental	N/A	not reimbursable	not reimbursable	N/A	N/A
Concrete Saw (\$50 Per Day Minimum)	Each Per Foot	\$2.00	\$2.00	N/A	N/A
D. O. Meter (Dissolved Oxygen)	Each Per Day	\$20.00	\$50.00	N/A	N/A
Data Logger	Each Per Day	\$125.00	\$150.00	N/A	N/A
Data Logger	Each Per Month	\$500.00	\$750.00	N/A	N/A
Data Logger/Pressure Transducer	Each Per Day	\$300.00	\$385.00	N/A	N/A
Decontamination Supplies	N/A included within	the cost of the	activity		
Diaphragm Pump-2"	Each Per Day	\$35.00	\$45.00	N/A	N/A
Disposable Bailer	Each	N/A	N/A	\$8.00	\$10.00
EC Meter	Each Per Day	\$30.00	\$50.00	N/A	N/A
EH Meter	Each Per Day	\$30.00	\$50.00	N/A	N/A
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Equipment Truck	Each Per Day-1 Ton	\$45.00	\$55.00	N/A	N/A
Equipment Truck	Each Per Day-2 Ton	\$175.00	\$175.00	N/A	N/A
Equipment Truck	Each Per Day-1/2 Ton	\$45.00	\$45.00	N/A	N/A
Equipment Truck	Field Vehicle Mileage	\$0.40	\$0.48	N/A	N/A
Explosion Proof Exhaust Fan	Each Per Day	\$75.00	\$100.00	N/A	N/A
Fence Compound (Wood/Chain)	Each - 6' (Per Site)	N/A	N/A	\$850.00	\$1,500.00
Fence Compound (Chain) Fence Compound (Chain)	Fence/Ft. up to 1 yr Gate-up to 1 yr.	\$1.50 \$150.00	\$2.50 \$250.00	N/A N/A	N/A N/A
Film Developing	Per Roll	\$130.00 N/A	\$250.00 N/A	At Cost	At Cost
Field Office Trailer(3 day limit)	Each Per Day Per Site	\$50.00	\$75.00	N/A	N/A
Filter Sand	Each/Bag-100 lb.	N/A	N/A	\$10.00	\$12.00
Generator-3500 Watt	Each Per Day	\$75.00	\$100.00	N/A	N/A
Generator-400 Watt	Each Per Day	\$50.00	\$50.00	N/A	N/A

Equipment	Size/Description	Rental Average	Rental Maximum	Purchase Average	Purchase Max.
Hand Auger - Power	Each/Per Day	\$45.00	\$45.00	N/A	N/A
Interface Probe	Each/Per Day	\$40.00	\$50.00	N/A	N/A
Interface Probe	Each/Per Week	\$200.00	\$225.00	N/A	N/A
Interface Probe	Each/Per Month	\$400.00	\$450.00	N/A	N/A
Jackhammer	Each/Per Day	\$40.00	\$50.00	N/A	N/A
Jackhammer	Each/Per Week	\$150.00	\$200.00	N/A	N/A
Jackhammer	Each/Per Month	\$500.00	\$600.00	N/A	N/A
Oil & Water Separator	Each/Per Week-10gpm	\$150.00	\$200.00	\$5,000.00	\$5,000.00
Oil & Water Separator	Each/Per Month-10gpm	\$500.00	\$650.00	\$5,000.00	\$5,000.00
Oil & Water Separator	Each/Per Month	\$2,000.00	\$2,450.00	N/A	N/A
and Air Stripper					
OVM Meter	Each/Per Day	\$75.00	\$100.00	N/A	N/A
OVM Meter	Each/Per Week	\$250.00	\$300.00	N/A	N/A
Oxygen Meter	Each/Per Day	\$30.00	\$40.00	N/A	N/A
PH Meter	Each/Per Day	\$20.00	\$25.00	N/A	N/A
Pneumatic Pump	Each/Per Day	\$75.00	\$100.00	\$2,000.00	\$3,000.00
Pneumatic Pump	Each/Per Week	\$200.00	\$225.00	N/A	N/A
Pressure Gauges	Each/Per Day (For Vapor Testing)	\$75.00	\$100.00	\$276.00	\$388.00
Storage Tanks	200 Gallon/Per Month	\$50.00	\$75.00	\$250.00	\$325.00
Storage Tanks	500 Gallon/Per Month	\$100.00	\$150.00	N/A	N/A
Storage Tanks	1,000 Gallon/Per Day	\$25.00	\$35.00	\$700.00	\$875.00
Storage Tanks	2,000 Gallon/Per Day	\$30.00	\$45.00	N/A	N/A
Storage Tanks	5,000 Gallon/Per Day	\$35.00	\$45.00	\$3,750.00	\$4,200.00
Storage Tanks	5,000 Gallon/Per Month	\$1,200.00	\$1,350.00	\$3,750.00	\$4,200.00
Storage Tanks	10,000 Gallon/Per Day	\$35.00	\$45.00	\$8,500.00	\$9,750.00
Storage Tanks	10,000 Gallon Per Month	\$1,200.00	\$1,530.00	\$8,500.00	\$9,750.00
Storage Tanks	20,000 Gallon/Per Day	\$100.00	\$130.00	N/A	N/A
Storage Tanks	20,000 Gallon Per Month	\$750.00	\$1,350.00	N/A	N/A
PSH Skimmer Pump	Each/Per Day	\$100.00	\$150.00	\$2,700.00	
PSH Skimmer Pump	Each/Per Week	\$200.00	\$300.00	\$2,700.00	\$3,200.00
PSH Skimmer Pump	Each/Per Month	\$150.00	\$250.00	\$2,700.00	\$3,200.00
PVC Well Casing	2"-Per Foot	N/A	N/A	\$1.00	\$2.00
PVC Well Casing	4"-Per Foot	N/A	N/A	\$4.00	\$4.50
PVC Well Screen	2"-Per Foot	N/A	N/A	\$3.00	\$4.00
PVC Well Screen	4"-Per Foot	N/A	N/A	\$8.00	\$10.00

Equipment	Size/Description	Rental Average	Rental Maximum	Purchase Average	Purchase Max.
Regenerative Blower	Each Per/Month 1.5 Hp	\$100.00	\$150.00	\$1,000.00	\$1,000.00
Regenerative Blower	Each Per/Month 5.0 Hp	\$300.00	\$350.00	N/A	N/A
Regenerative Blower	Each Per/Month 15.0 Hp	\$750.00	\$1000.00	N/A	N/A
Report Reproduction	Per Page/Copy	N/A	N/A	\$0.05	\$0.10
Report Reproduction	Per Page/Color Copy	N/A	N/A	\$1.50	\$1.70
Sample Containers	Water / Soil	N/A	N/A	Inc. in lab	Inc. in lab Cost
Soil Vapor Probe	Each/Per Day	\$100.00	\$150.00	N/A	N/A
Soil Vapor Probe	Each/Per Week	\$250.00	\$300.00	N/A	N/A
Sorbent Pads	Each	N/A	N/A	At Cost	At Cost
Steam Cleaner	Each/Per Day	\$75.00	\$135.00	N/A	N/A
Submersible Pump - 8 gpm	Each/Per Day	\$20.00	\$25.00	\$600.00	\$600.00
Submersible Pump - 8 gpm	Each/Per Week	\$75.00	\$95.00	\$600.00	\$600.00
Survey Equipment	Each/Per Day Transit, Tripod, Etc.	\$25.00	\$70.00	N/A	N/A
Trackhoe - Light Duty (Track Excavator) (Hp 95-100; Dig Depth 20'-22')	Each/Per Day	\$425.00	\$440.00	N/A	N/A
Trackhoe - Light Duty	Each/Per Week	\$1,185.00	\$1,200.00	N/A	N/A
Trackhoe - Light Duty	Each/Per Month	\$3,350.00	\$3,400.00	N/A	N/A
Trackhoe - Medium Duty (Track Excavator)	Each/Per Day	\$575.00	\$625.00	N/A	N/A
(Hp 150-155; Dig Depth 24'-26') Trackhoe - Medium Duty	Each/Per Week	\$1,675.00	\$1,750.00	N/A	N/A
Trackhoe - Medium Duty	Each/Per Month	\$5,000.00	\$5,100.00	N/A	N/A
Trackhoe - Heavy Duty (Track Excavator) Hp 195-200; Dig Depth Over 26')	Each/Per Day	\$720.00	\$750.00	N/A	N/A
Trackhoe - Heavy Duty	Each/Per Week	\$2,175.00	\$2,200.00	N/A	N/A
Trackhoe - Heavy Duty Trackhoe - Heavy Duty	Each/Per Week Each/Per Month	\$6,500.00	\$2,200.00 \$6,550.00	N/A N/A	N/A N/A
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Waste Containers	Each/Barrel & Drum	N/A	N/A	\$30.00	\$40.00
Well Head Covers	Each	N/A	N/A	\$75.00	\$110.00

These Tables should be used for all excavation or over-excavation activities performed at the site.

Site Excavation:

Item	2" Asphalt	6" Concrete	Native Soil
Remove Pavement Over Affected Area: Average Cost (sq. ft.) Maximum Rate	\$2.50 \$3.50	\$3.25 \$5.50	\$0.00 \$0.00
Pavement/Cover Resurfacing Average Rate (sq. ft.) Maximum Rate	\$3.00 \$4.00	\$3.50 \$4.00	\$0.00 \$0.00

Excavate Affected Area, Replace Backfill Material and Compaction:

Item	Average Rate (cubic yard)	Maximum Rate (cubic yard)
Excavate Affected Area	\$7.00	\$9.00
Material -Regular	\$9.50	\$11.00
Material - Select	\$11.50	\$14.00
Compaction - Normal	\$7.00	\$9.00
Compaction - Select	\$9.00	\$12.00

Excavation includes time, materials and equipment operator. Material c osts include purchase, delivery and filling. Compaction includes machine labor and in place density tests (does not include hand labor).

Personnel For Excavation:

Title	Duty	Hours	Average Rate	Maximum Allowable Rate	Total Average Costs	Total Maximum Costs
Field Engineer Project Manager Technician III Word Processor Drafts-Person Total	Field/Report Field/Report Rev. Field/Report Rev. Report/Review Report/Review	15 6 8 4 5	\$60.00 \$70.00 \$45.00 \$30.00 \$40.00	\$65.00 \$80.00 \$50.00 \$35.00 \$45.00	\$900.00 \$420.00 \$360.00 \$120.00 \$200.00 \$2,000.00	\$975.00 \$480.00 \$400.00 \$140.00 \$225.00 \$2,220.00

Excavation Personnel includes field supervisory work, sample collection, report preparation, and report review.

Example:

Excavate 300 cubic yards of soil from an area. Assume that the dimensions of the excavation are 28.5 ft. by 28.5 ft. by 10 ft. deep. The assumption that the new backfill for the excavation is measured in loose yards, so a factor of 1.3 is used to estimate the volume of backfill material needed.

Site Excavation

Item	2'' Asphalt	Sq. Ft.	Cost	6" Concrete	Sq. Ft.	Cost
Remove Pavement Over Affected Area: Average Cost (sq. ft.) Maximum Rate	\$2.50 \$3.50	813 813	\$2,032.50 \$2,845.50	\$3.25 \$5.50	813 813	\$2,642.25 \$4,471.50
Pavement/Cover Resurfacing Average Rate (sq. ft.) Maximum Rate	\$3.00 \$4.00	813 813	\$2,439.00 \$3,252.00	\$3.50 \$4.00	813 813	\$2,845.50 \$3,252.00

Excavate Affected Area, Replace Backfill Material and Compaction:

Item	Av. Rate Per Cubic Yd.	Cubic Yds.	Cost	Max. Rate Per Cubic Yd.	Cubic Yards	Cost
Excavate Affected Area	\$7.00	300	\$2,100.00	\$9.00	300	\$2,700.00
Material -Regular	\$9.50	390	\$3,705.00	\$11.00	390	\$4,290.00
Material - Select	\$11.50	390	\$4,485.00	\$14.00	390	\$5,460.00
Compaction - Normal	\$7.00	390	\$2,730.00	\$9.00	390	\$3,510.00
Compaction - Select	\$9.00	390	\$3,510.00	\$12.00	390	\$4,680.00

Excavation includes time, materials and equipment operator. Material costs include purchase, delivery and filling. Compaction includes machine labor and in place density tests (does not include hand labor).

Personnel For Excavation:

Title	Duty	Hours	Average Rate	Maximum Allowable Rate	Total Average Costs	Total Maximum Costs
Field Engineer	Field/Report	15	\$60.00	\$65.00	\$900.00	\$975.00
Project Manager	Field/Report Rev.	6	\$70.00	\$80.00	\$420.00	\$480.00
Technician III	Field/Report Rev.	8	\$45.00	\$50.00	\$360.00	\$400.00
Word Processor	Report/Review	4	\$30.00	\$35.00	\$120.00	\$140.00
Drafts-Person	Report/Review	5	\$40.00	\$45.00	\$200.00	\$225.00
Total		38			\$2,000.00	\$2,220.00

Excavation Personnel includes field supervisory work, sample collection, report preparation, and report review.

Excavate 300 cubic yards of soil from an area. Assume that the dimensions of the excavation are 28.5 ft. by 28.5 ft. by 10 ft. deep. The assumption that the new backfill for the excavation is measured in loose yards, so a factor of 1.3 is used to estimate the volume of backfill material needed.

Site Excavation		Average Rate			Maximum Rate		
Item	2" Asphalt	Sq. Ft.	Cost	2" Asphalt	Sq. Ft.	Cost	
Remove Pavement Over Affected Area: Rate/Cost (sq.ft.) Pavement/Cover Resurfacing	\$2.50	813	\$2,032.50	\$3.50	813	\$2,845.50	
Rate/Cost (sq.ft.)	\$3.00	813 Volume Cubic Yards	\$2,439.00	\$4.00	813 Volume Cubic Yards	\$3,252.00	
Excavate Affected Area Material -Regular Compaction - Normal Personnel Costs	\$7.00 \$9.50 \$7.00	300 390 390	\$2,100.00 \$3,705.00 \$2,730.00 \$2,000.00	\$9.00 \$11.00 \$9.00	300 390 390	\$2,700.00 \$4,290.00 \$3,510.00 \$2,220.00	
Total Costs for Example			\$15,006.50			\$18,817.50	

Site Excavation	Average Rate	Maximum Rate
Site Excavation	Average Kate	Maximum Rate

Item	6"Concrete	Sq. Ft.	Cost	6" Concrete	Sq. Ft.	Cost
Remove Pavement Over						
Affected Area:	\$3.25	813	\$2,642.25	\$5.50	813	\$4,471.50
Cost (sq.ft.) Pavement/Cover Resurfacing	\$3.23	613	\$2,042.23	\$3.30	613	\$4,471.30
Rate (sq.ft.)	\$3.50	813	\$2,845.50	\$4.00	813	\$3,252.00
		Volume Cubic Yards			Volume Cubic Yards	
Excavate Affected Area	\$7.00	300	\$2,100.00	\$9.00	300	\$2,700.00
Material -Regular	\$9.50	390	\$3,705.00	\$11.00	390	\$4,290.00
Compaction - Normal	\$7.00	390	\$2,730.00	\$9.00	390	\$3,510.00
Personnel Costs			\$2,000.00			\$2,220.00
Total Costs for Example			\$16,022.75			\$20,443.50

The costs shown are for the installation of the groundwater extraction and treatment system. The system includes one (1) pumping well and three (3) observation wells. The three (3) observation wells are assumed to be installed during the site assessment.

Personnel:

Title	Duty	Hours	Average Rate	Maximum Rate	Total Average	Total Maximum
Senior Engineer Project Manager Technician Staff Engineer Drafts Person Word Processor	Report Preparation Field/Report Rev. Field/Report Rev. Report/Review Report/Review Report/Review	3 25 40 27 12 10	\$85.00 \$70.00 \$40.00 \$70.00 \$40.00 \$30.00	\$95.00 \$80.00 \$45.00 \$80.00 \$45.00 \$35.00	\$255.00 \$1,750.00 \$1,400.00 \$1,755.00 \$480.00 \$300.00 \$5,940.00	\$285.00 \$2,000.00 \$1,600.00 \$1,890.00 \$540.00 \$350.00 \$6,665.00

Groundwater Extraction System - System Cost

Equipment	Quantity	Rate/Each	Pneumatic Total	Submersible Total
Submersible Pump Pneumatic Pump Plumbing supplies Fence Compound Product Storage Tank(s)	Each Each Per Well Lump Sum	\$600.00 \$2,000.00 \$575.00 \$1,200.00 \$250.00	\$2,000.00 \$575.00 \$1,200.00 \$250.00	\$600.00 \$575.00 \$1,200.00 \$250.00
Oil Water Separator Air Stripper Air Compressor Miscellaneous Sub Total	Each Each Per Month Lump Sum	\$5,000.00 \$5,000.00 \$600.00 \$300.00 \$50.00	\$250.00 \$5,000.00 \$600.00 \$300.00 \$50.00 	\$5,000.00 \$6,000.00 \$300.00 \$50.00

Groundwater Extraction System - Installation Costs

Item	Per Unit	Unit Cost	Set Up
Trenching Resurfacing Plumbing Electrical Costs	Per Foot/100 Ft. Per Foot/100 Ft. Per Foot/100 Ft. Utilities	\$15.00 \$6.00 \$15.00 Lump Sum	\$1,500.00 \$600.00 \$1,500.00 \$210.00
Subtotal			\$3,810.00

Summary

Item	Total Hours	Personnel Cost	Equipment Cost	Equipment Installation	Total
Groundwater Extraction System (System Setup - Submersible Pump	117	\$5,940.00	\$8,575.00	\$3,810.00	\$18,325.00 \$19,725.00
Groundwater Extraction System (System Setup) - Pneumatic Pump	117	\$5,940.00	\$9,975.00	\$3,810.00	

Notes:

- 1. Monthly costs for equipment rental are included in the monthly operation and maintenance.
- 2. Oil/Water separator is allowed if recovering phase separated hydrocarbons (PSH).
- 3. The above costs do not include the cost of electrical work.

Initial (emergency) abatement measures are those activities performed to reduce a n immediate risk or threat to human health, safety and the environment. These activities outlined in TAC 334.7 (relating to initial abatement and site check), include the following:

- Monitor and mitigate any fire and safety hazards posed by vapors or free product.
- Removal of product from tanks to prevent a further release.
- Continuous phase-separated product removal.

Pursuant to TAC 334.310 (f), all emergency abatement measures that continue after 48 hours (except removal of continuous phase-separated product flow) must be approved by the TWC prior to implementation. Costs for emergency measures submitted in the application for reimbursement should be identified, and submitted with justification. All costs associate d with emergency abatement are subject to verification.

The following are the guidelines for laboratory analysis:

Rate	Rate Explanation
Regular Rate	Greater than three (3) day turn around time.
Rush Rate	Twenty-four (24) hour turn around time. Explanation must be provided for use of this rate.
Other	Forty-eight (48) hour turn around.

Labor for collecting the samples is not included in the above costs unless the samples are collected by the lab.

All necessary supplies are assumed to be included in the price. Any additional expenses incurred by the contractor are assumed to be included in the allowable markup (labor, supplies, etc.)

Costs should be billed for reimbursement at actual costs up to the allowable maximum, plus allowable markup up to the maximum to absorb any additional expenses incurred by the contractor.

Costs are exclusive of shipping and handling. Shipping and handling is reimbursable at cost. Shipping and handling invoices should be included with your reimbursement applications.

Test Method	Average Rate	Max. Rate	Test Method	Average Rate	Max. Rate
EPA: Method 418.1			EPA: Method 418.1		
TPH/Soil - Reg. Rate	\$58.00	\$65.00	TPH/Water - Reg. Rate	\$52.00	\$63.00
TPH/Soil - Rush Rate	\$89.00	\$97.00	TPH/Water - Rush Rate	\$91.00	\$109.00
TPH/Soil - Other	\$81.00	\$90.00	TPH/Water - Other	\$76.00	\$81.00
EPA: Method 8020 w/5030			EPA: Method 8020 w/5030		
BTEX/SoiL-Reg. Rate	\$82.00	\$91.00	BTEX/Water-Reg. Rate	\$89.00	\$111.00
BTEX/Soil-Rush Rate	\$130.00	\$152.00	BTEX/Water-Rush Rate	\$142.00	\$168.00
BTEX/Soil-Other	\$105.00	\$116.00	BTEX/Water-Other	\$121.00	\$145.00
EPA: Method 8015 w/5030			EPA: Method 8015 w/5030		
BTEX/Soil-Reg. Rate	\$94.00	\$102.00	BTEX/Water-Reg. Rate	\$101.00	\$108.00
BTEX/Soil-Rush Rate	\$171.00	\$208.00	BTEX/Water-Rush Rate	\$178.00	\$213.00
BTEX/Soil-Other	\$97.00	\$113.00	BTEX/Water-Other	\$102.00	\$115.00
EPA: Method 8240 w/5030			EPA: Method 8240 w/5030		
BTEX/Soil-Reg. Rate	\$181.00	\$216.00	BTEX/Water-Reg. Rate	\$188.00	\$223.00
BTEX/Soil-Rush Rate	\$267.00	\$349.99	BTEX/Water-Rush Rate	\$275.99	\$354.99
BTEX/Soil-Other	\$228.00	\$271.00	BTEX/Water-Other	\$204.00	\$249.00
Total Metals EPA 1311			EPA: Method 8015 w/5030		
Soil/Water-Reg. Rate	\$166.00	\$218.00	MTBE/Water - Reg. Rate	\$78.00	\$99.00
Soil/Water-Rush Rate	\$228.00	\$302.00	MTBE/Water - Rush Rate	\$138.00	\$177.00
Soil/Water-Other	\$184.00	\$249.00	MTBE/Water - Other	\$86.00	\$95.00
			TDS EPA 160.1-(Total		
			Dissolved Solids)		
			Water-Reg. Rate	\$15.00	
			Water-Rush Rate	\$30.00	
			Water-Other	\$20.00	

Test Method	Average Rate	Max. Rate	Test Method	Average Rate	Max. Rate
TCLP - Total Soil-Reg. Rate	\$850.00	\$950.00	TCLP - 8 Metals Water - Reg. Rate	\$200.00	\$250.00
Soli-Reg. Rate	\$650.00	\$930.00	water - Reg. Rate	\$200.00	\$230.00
TCLP - Lead Soil-Reg. Rate	\$100.00	\$150.00			
Total Lead			TOX (EP Toxicity -Metals)		
Soil/Water - Reg. Rate	\$25.00	\$35.00	Water - Reg. Rate	\$125.00	\$140.00
Soil/Water - Rush Rate	\$35.00	\$45.00	Water - Rush Rate	\$150.00	\$175.00
Soil/Water - Other	\$30.00	\$40.00	Water - Other	\$140.00	\$155.00
Ph			Soil Bulk Density		
Water - Reg. Rate	\$6.00	\$10.00	Soil - Reg. Rate	\$10.00	\$10.00
Water - Rush Rate	\$6.00	\$10.00	Soil - Rush Rate	\$10.00	\$10.00
Water - Other	\$6.00	\$10.00	Soil - Other	\$10.00	\$10.00
Mass Based Water Content					
(Karl Fisher or Moisture Cont.)					
Soil - Reg. Rate	\$15.00	\$25.00			
Soil - Rush Rate	\$15.00	\$25.00			
Soil - Other	\$15.00	\$25.00			
Volumetric Soil/Water					
Content(Centrifuge Method)					
Soil - Reg. Rate	\$20.00	\$25.00			
Soil - Rush Rate	\$20.00	\$25.00			
Soil - Other	\$20.00	\$25.00			
Total Organic Carbon			Total Organic Carbon		
(TOC)			(TOC)		
Soil - Reg. Rate	\$35.00	\$40.00	Water - Reg. Rate	\$25.00	\$30.00
Soil - Rush Rate	\$50.00	\$60.00	Water - Rush Rate	\$40.00	\$50.00
Soil - Other	\$45.00	\$50.00	Water - Other	\$35.00	\$40.00
Polynuclear Aromatic					
Hydrocarbon (PAH)					
EPA 8100 (GC) Soil - Reg. Rate	\$180.00	\$210.00	Water - Reg. Rate	\$150.00	\$175.00
Johr - Reg. Raic	φ100.00	φ210.00	water - Reg. Rate	φ150.00	φ1/3.00
Polynuclear Aromatic					
Hydrocarbon (PAH)					
EPA 8270 (GC/MS)					
Soil - Reg. Rate	\$225.00	\$250.00	Water - Reg. Rate	\$200.00	\$225.00

For Use Prior to March 1, 1993

Item	Maximum Allowed Mark-up
All subcontractors invoices, EXCEPT Waste Treatment, Waste Hauling and Disposal, and Lab Costs	20%
Laboratory Costs	20%
Waste Hauling and Disposal	20%
Waste Treatment	20%

For Use On or After March 1, 1993

Item	Maximum Allowed Mark-up
All subcontractors invoices, EXCEPT Waste Treatment, Waste Hauling and Disposal, and Lab Costs	15%
Laboratory Costs	10%
Waste Hauling and Disposal	10%
Waste Treatment	10%

- 1. Mark-up is allowed for the primary contractor and or primary corrective action specialist (consultant) on sub-contractor invoices.
- 2. Corrective Action Specialist/Contractors may not mark-up their own expenses.
- 3. Retail mark-up is not allowed. Mark-up should be calculated as follows: $$100.00 \times 15\% = 15.00

TWC Approval Letters

TWC corrective action activity approval letters or forms when applicable must be included with all applications for reimbursement.

Invoices

Invoices must be submitted for all items of corrective action which are being claimed for reimbursement. Subcontractor invoices must be submitted for all costs in excess of \$200.00 and for all line items in excess of \$200.00. Sub-contractor's invoices must be submitted for all costs where a mark-up is being reimbursed. Costs which are not pro perly documented will not be reimbursed.

Travel Reimbursement Policy

Mileage/Airfare - TWC will reimburse the lesser of 500 miles round-trip mileage, plus 1 0 hours travel time or round-trip coach airfare, plus 1 1/2 hours travel time per site visit, excluding site related miles. An justification must be provided for more than two (2) people per trip.

The rate per mile on the vehicle will accrue on travel from office to site and mileage for other related site activities. An explanation should be provided for mileage traveled. Mileage for personal trips is not reimbursable. This amount will be reimbursed for actual travel for each reasonable activity being performed (per site/per visit). The purpose and length of each activity/trip should be described in detail.

Personnel rates will be at normal rates for the specified title of the individual traveling. No overtime rates will be reimbursed. For companies who utilize other than local office, only charges from the local office to the site are reimbursable.

Entertainment is not a reimbursable travel expense.

Per Diem (meals and lodging) will be reimbursed at the lesser of cost or \$80.00 per night, if necessary.

Quarterly and Semi-Annual reporting should be based on the following.

Personnel (3 wells-25 feet deep)

Title	Duty	Hours	Average Rate/per hour	Max. Rate/per hour	Average Cost Allowed	Max. Cost Allowed.
Project Manager	Mgmt./Rpt Rev.	1	\$70.00	\$80.00	\$70.00	\$80.00
Field Engineer	Mgmt./Field/Rpt.Prep.	4	\$60.00	\$65.00	\$240.00	\$260.00
Technician II	Field	4	\$40.00	\$45.00	\$160.00	\$180.00
Draftsperson I	Report Preparation	0	\$40.00	\$45.00	\$ 0.00	\$0.00
Word Processor	Report Preparation	1	\$30.00	\$35.00	\$30.00	\$35.00
		10			\$500.00	\$555.00

Personnel (6 wells-25 feet deep)

Title	Duty		Rate/per	Rate/per	Cost	Max. Cost Allowed.
Project Manager	Mgmt./Rpt Rev.	1	\$70.00	\$80.00	\$70.00	\$80.00
Field Engineer	Mgmt./Field/Rpt.Prep.	5	\$60.00	\$65.00	\$300.00	\$325.00
Technician II	Field	6	\$40.00	\$45.00	\$240.00	\$270.00
Draftsperson I	Report Preparation	0	\$40.00	\$45.00	\$ 0.00	\$0.00
Word Processor	Report Preparation	1	\$30.00	\$35.00	\$30.00	\$35.00
		13			\$640.00	\$710.00

Equipment Rental

Description	Unit	Unit Cost	Number of Units	3 Wells	6 Wells
Submersible Pump	Per Day	\$20.00	1	N/A	N/A
Pneumatic Pump (for well purging)	Per Day	\$75.00	1	\$75.00	\$75.00
Interface Probe	Per Day	\$40.00	1	\$40.00	\$40.00
Portable Gas Monitor (OVM Meter)	Per Day	\$75.00	1	\$75.00	\$75.00
Generator	Per Day	\$50.00	1	\$50.00	\$50.00
Bailers	Each/Cost	\$8.00	Per Well	\$24.00	\$48.00
<u>Truck</u>	Per Day	\$45.00	1	\$45.00	\$45.00
Total				\$309.00	\$333.00

Total

Item	Personnel	Equipment	Total
3 Wells	\$500.00	\$309.00	\$809.00
6 Wells	\$640.00	\$333.00	\$973.00

Quarterly and semi-annual reports should be submitted on the Monitoring Event Summary and Status Report (Form TWC-0013).

The above costs include the time for sample collection, but not laboratory analysis.

Monthly well gauging is not included in the above costs. An additional one (1) hour per month will be allowed for field personnel to perform monthly well gauging, if required.

All wells over 50 feet and/or with a yield of over 20 gallons should use a submersible pump or pneumatic pump Explanation should be provided for use of a bailer in these instances.

Equipment which was purchased as part of the system intallation should not be included in the equipment rental costs for quarterly or semi-annual monitoring.

Annual monitoring and reporting should be based on the following.

Personnel (3 wells-25 feet deep)

Title	Duty	Hours	Average Rate/per hour	Max. Rate/per hour	Average Cost Allowed	Max. Cost Allowed.
Project Manager	Mgmt./Rpt Rev.	3	\$70.00	\$80.00	\$210.00	\$240.00
Field Engineer	Mgmt./Field/Rpt.Prep.	6	\$60.00	\$65.00	\$360.00	\$390.00
Technician II	Field	4	\$40.00	\$45.00	\$160.00	\$180.00
Draftsperson I	Report Preparation	4	\$40.00	\$45.00	\$160.00	\$180.00
Word Processor	Report Preparation	3	\$30.00	\$35.00	\$90.00	\$105.00
		20			\$980.00	\$1,095.00

Personnel (6 wells-25 feet deep)

Title	Duty	Hours	Average Rate/per hour	Max. Rate/per hour	Cost	Max. Cost Allowed.
Project Manager	Mgmt./Rpt Rev.	3	\$70.00	\$80.00	\$210.00	\$240.00
Field Engineer	Mgmt./Field/Rpt.Prep.	8	\$60.00	\$65.00	\$480.00	\$520.00
Technician II	Field	6	\$40.00	\$45.00	\$240.00	\$270.00
Draftsperson I	Report Preparation	5	\$40.00	\$45.00	\$200.00	\$225.00
Word Processor	Report Preparation	$\frac{4}{26}$	\$30.00	\$35.00	\$120.00	<u>\$140.00</u>
		26			\$1,250.00	\$1,395.00

Annually Monitoring-Equipment Rental

Description	Unit	Unit Cost	Number of Units	3 Wells	6 Wells
Submersible Pump	Per Day	\$20.00	1	N/A	N/A
Pneumatic Pump (for well purging)	Per Day	\$75.00	1	\$75.00	\$75.00
Interface Probe	Per Day	\$40.00	1	\$40.00	\$40.00
Portable Gas Monitor (OVM Meter)	Per Day	\$75.00	1	\$75.00	\$75.00
Generator	Per Day	\$50.00	1	\$50.00	\$50.00
Bailers	Each/Cost	\$8.00	Per Well	\$24.00	\$48.00
<u>Truck</u>	Per Day	\$45.00	1	\$45.00	\$45.00
Total				\$309.00	\$333.00

Total

Item	Personnel	Equipment	Total	
3 Wells	\$980.00	\$309.00	\$1,289.00	
6 Wells	\$1,250.00	\$333.00	\$1,583.00	

Annual reports should be submitted in the Annual Groundwater Monitoring Report.

The above costs include the time for sample collection, but not laboratory analysis.

Monthly well gauging is not included in the above costs. An additional one (1) hour per month will be allowed for field personnel to perform monthly well gauging, if required.

All wells over 50 feet and/or with a yield of over 20 gallons should use a submersible pump or pneumatic pump Explanation should be provided for use of a bailer in these instances.

Equipment which was purchased as part of the system intallation should not be included in the equipment rental costs for annual monitoring.

The below summarizes the average and maximum reimbursable charge s for the operation and maintenance of remediation systems. This summary represents one (1) year of operation and maintenance with weekly visits. The below systems include one (1) extra ction well and three (3) observation wells.

Groundwater Extraction System

Title	Duty	Rate/per	Rate/per	Cost	Max. Cost Allowed.
y E	Rpt Rev. /Rpt. Prep Field/Rpt.Prep.	 	\$50.00	\$3,500.00 \$4,320.00 \$7,820.00	\$4,800.00

Soil Vapor Extraction System (SVE)

Title	Duty	Rate/per	Rate/per		Max. Cost Allowed.
Project Manager Technician	Rpt Rev. /Rpt. Prep Field/Rpt.Prep.	 	\$50.00	\$3,500.00 \$4,320.00 \$7,820.00	\$4,800.00

Soil Vapor Extraction System and Groundwater Extraction System

Title	Duty		Rate/per	Rate/per	Cost	Max. Cost Allowed.
Project Manager Technician	Rpt Rev. /Rpt. Prep Field/Rpt.Prep.	55 111 166		\$50.00	\$3,850.00 \$4,995.00 \$8,845.00	\$5,550.00

Equipment Rental

Description	Costs	Unit	Groundwater Extraction System	Vapor Extraction System	Groundwater and VES System
Portable Gas Monitor	\$75.00	Per Day	N/A	\$900.00	\$900.00
Generator	N/A	Per Month	N/A	N/A	N/A
Regenerative Blower	\$150.00	Per Month	N/A	N/A	N/A
Maintenance	\$50.00	Per Month	\$600.00	\$600.00	\$600.00
Interface Probe	\$40.00	Per Day	\$480.00	\$0.00	\$480.00
Truck	\$45.00	Per Day	\$540.00	\$540.00	\$540.00
Oil/Water Separator	System	N/A	N/A	N/A	N/A
Air Stripper	\$625.00	Per Month	\$7,500.00	\$0.00	\$7,500.00
Air Compressor	\$300.00	Per Month	\$3,600.00	\$0.00	\$3,600.00
Aeration Trays	\$100.00	Per Month	\$0.00	\$100.00	\$100.00
Storage Tanks	System	N/A	\$0.00	\$0.00	\$0.00
Incinerator	System	N/A	\$0.00	\$0.00	\$0.00
Electrical Cost	\$200.00	Per Month	\$2,400.00	\$2,400.00	\$2,400.00
Total			\$15,120.00	\$4,540.00	\$16,120.00

Disposal Equipment

Description	Costs		Extraction	Extraction	Groundwater and VES System
Disposable Bailers Carbon Canister	\$8.00 \$500.00	Each Each	\$288.00 \$6,000.00	N/A \$6,000.00	\$288.00 \$6,000.00
Total			\$6,288.00	\$6,000.00	\$6,288.00

Summary

Item	Personnel	1 1	Disposable Equipment	Total
Groundwater Extraction System	\$7,820.00	\$15,120.00	\$6,288.00	\$29,228.00
Soil Vapor Extraction System	\$7,820.00	\$4,540.00	\$6,000.00	\$18,360.00
Groundwater and SVE	\$8,845.00	\$16,120.00	\$6,288.00	\$31,253.00

Notes:

- 1. Equipment purchased and reimbursed during the installation of the remediation system should not be included in the operation and maintenance of the remediation system.
- 2. The above costs include costs for a site check and effluent sampling. Maintenance time related to repairs are not included in these costs. All additional costs should be submitted on the additional costs forms.
- 3. The total number of hours should increase by 25 percent for each additional 4 wells on-site.

Personnel Title	Average Rate/Hour	Maximum Rate/Hour
Principal (PR)	\$115.00	\$130.00
Prin. Engineer/Geologist/Hydrogeologist III (P3)	\$100.00	\$110.00
Senior Engineer/Geologist/Hydrogeologist II (S2)	\$85.00	\$95.00
Assoc. Engineer/Geologist/Hydrogeologist I (A1)	\$75.00	\$85.00
Project Manager (PM)	\$70.00	\$80.00
Staff Engineer/Geologist/Hydrogeologist (SF)	\$65.00	\$70.00
Field Engineer/Geologist/Hydrogeologist (FD)	\$60.00	\$65.00
Environmental Scientist (ES)	\$65.00	\$70.00
Health Scientist (HS)	\$70.00	\$80.00
Technician III (3)	\$45.00	\$50.00
Technician II (2)	\$40.00	\$45.00
Technician I (1)	\$35.00	\$40.00
Construction Foreman III (C3)	\$45.00	\$55.00
Construction Foreman II (C2)	\$40.00	\$50.00
Construction Foreman I (C1)	\$40.00	\$45.00
Operator III (O3)	\$35.00	\$40.00
Operator II (O2)	\$30.00	\$35.00
Operator I (O1)	\$25.00	\$30.00
Drafts Person II (D2)	\$45.00	\$50.00
Drafts Person I (D1)	\$40.00	\$45.00
Laborer III (L3)	\$25.00	\$30.00
Laborer II (L2)	\$20.00	\$25.00
Laborer I (L1)	\$15.00	\$20.00
Word Processor (WP)	\$30.00	\$35.00
Clerical (CL)	\$25.00	\$30.00

Note: The above Personnel Titles correspond with the Personnel/Qualifications & Task . Reimbursement will be based on the above labor costs.

Personnel and Qualifications	Task Description
Principal (PR) Principal would probably be registered under proposed Subchapter J rules. Administrative and/or professional head of organization with authority and responsibility for conceiving and executing plans and function of the organization and directing a professional staff. Normally has financial interest in the company as partial owner, investor, or stockholder. Charges a very limited number of hours per site, as in review of the project documents as a Principal. Principal should almost never bill field work at this rate.	 Expert testimony Legal strategies Depositions Review most complex sites New technology innovations
Principal Engineer/Geologist/Hydrogeologist III (P3) Typically requires an advanced degree. Requires professional registration when applicable, and 10-12 years experience. Principal should be registered as required by Subchapter J. Administrative and/or professional head of organization with authority and responsibility for directing a professional staff. As a professional in engineering, geology, or hydrogeology, may be responsible for district/regional technical staff. Will serve as technical expert and coordinator of very large and/or technically difficult environmental and groundwater recovery and treatment projects. Charges a very limited number of hours per site, as in review of project documents for technical accuracy. Principal should almost never bill field work at this rate.	 Project oversight Review technical reports Review remedial action plans Data review and analysis
Senior Engineer/Geologist/Hydrogeologist II (S2) Typically requires advanced degree, registration or certification as a P.E. or other professional as applicable, and 8 or more years of experience in technical and/or managerial roles. Complies with Subchapter J. Serves as senior technical leader for environmental remediation projects of medium to large scope and/or complexity and has developed substantial expertise in the field of practice. May supervise or direct the work activities of lower level engineers and technicians. Will perform very limited field work, and have limited involvement in projects. Duties typically include reviewing reports, developing strategies, and attending client and/or agency meeting. Responsible for approving designs, reports, plans, and specifications before submittal to clients or regulatory agency. If significant involvement in a highly technical project, should have substantial technical expertise directly related to the project.	 Project oversight Project management Aquifer characterization Review of technical reports Review remedial action plans Data review and analysis Prepares proposals

Personnel/Qualifications & Task Description

Personnel and Qualifications **Task Description** Associate Engineer/Geologist/Hydrogeologist I (A1) - Project management Typically requires a degree in engineering, geology, - Engineering/remedial equipment hydrogeology, or related science, and registration or design certification as a P.E. or other professional as applicable. - Aquifer characterization Complies with Subchapter J, and has 5-10 years of experience - Review technical reports or an advanced degree and 3 years experience. Leads and - Review remedial action plans supervises technical teams of lower level personnel, but would - Data review and analysis have limited number of hours charged to each site, and only a - Report preparation small percentage of total field hours. Generally supervises - Prepares proposals project managers and oversees a number of projects. May - Site inspections (periodic) prepare proposals and cost estimates for projects, and schedule resources. Significantly involved in review of reports. **Project Manager (PM)** Requires a bachelor's degree in physical sciences, natural - Project management science, biological science, environmental science, engineering, - Data review and analysis applied geography, or in a subject directly relevant to the - Report preparation environmental field which is technical in focus and 2 years of - Report review experience in corrective action services. Complies with - Engineering/equipment design Subchapter J. Under general direction, prepares environmental - On-site supervision programs and plans specifications for site remediation activities. - Work plan preparation Is responsible for gathering field data, and is competent at data - Site assessment planing - Field work planning analysis. Has responsibility for managing entire projects. - Site inspection (periodic) Identifies and develops approaches and prepares plans to remedy contamination problems using various techniques, - Obtaining permission to access serves as on-site technical expert on projects. Analyzes and off-site properties interprets data, prepare sections of site assessment reports, may do hydrological site characterizations, supervise hydraulic tests, etc. Staff Engineer/ Geologist/ Hydrogeologist (SF) Entry level position that typically requires a degree in - Report preparation engineering, geology, hydrogeology, or related science, and 1-3 - Field work preparation/planning years related experience. Works under close supervision to - Supervise site assessment perform specific routine tasks related to environmental activities remediation system design, or general geological and field - Site reconnaissance and mapping tasks. This position will normally be highest in number of hours - Remedial system installation billed for field work. Gathers basic technical information, and - Limited data review and analysis provides technical support for hydrogeological on-site projects. - Obtaining permission to access Responsibilities may include installing monitor wells, aiding in off-site properties geological mapping, basic geological analysis. - Monitoring activities - Supervise over-excavation

activities

Personnel and Qualifications	Task Description
Field Engineer/Geologist/Hydrogeologist (FD) Entry level position requiring a degree in engineering, geology, hydrogeology, or related science, and 0-1 year experience. Works under close supervision to perform routine field tasks related to the projects; work involves installing monitor wells, aiding in geological mapping, writing field notes, and basic geological analysis.	- Field work prep. and planning - Supervise site assessment activities - Site reconnaissance/mapping - Remedial system installation - Limited data review and analysis - Obtaining permission to access off-site properties - Monitoring activities - Supervise over-excavation activities
Environmental Scientist (ES) Typically requires a degree in biology, chemistry, microbiology, or related environmental science degree, and 2-6 years of related experience or an advanced degree and 2 years related experience. Performs assignments related to site assessments and bioremediation projects; risk analysis methodologies and analytical data reduction.	 Data review and analysis Bioremediation feasibility studies Report preparation Report review On-site supervision Work plan preparation Site assessment planning
Health Scientist (HS) Typically requires a degree in Industrial Hygiene, Toxicology, or a related health science degree, requires 1-3 years of related experience. Ensures compliance of field service operations within OSHA safety standards, and public health concerns. Work performed would need to be clearly defined and directly related to remediation in order to be reimbursable.	- Health and safety coordinator - Develop site safety plan - Oversees safety health monitoring (periodic)
Technician III (T3) Typically requires a high school diploma, certified or licensed trades-person or an Associate degree. Requires 4-6 years related experience. Responsible for general on-site supervision of installation, maintenance, and repair of machinery and equipment, and sampling activities. May collect samples and maintain documentation of record logs pertaining to monitoring and maintenance of machinery and equipment. Works under appropriate supervision.	- Field work preparation and planning - Operation and maintenance of equipment - Well development - Waste handling - Decontamination - Environmental monitoring - Remedial system installation - Field contractor supervision (limited) - Monitoring activities - PSH removal (Free Product)

Personnel/Qualifications & Task Description

Personnel and Qualifications	Task Description
Technician II (T2) Typically requires a high school diploma. Requires 2-4 years on-the-job training. Performs routine labor tasks related to onsite installation, maintenance and repair of machinery, and equipment. Performs routine tasks such as soil and groundwater sampling, bailing wells, etc. Performs these tasks under appropriate supervision.	- Field work preparation and planning - Operation and maintenance of equipment - Well development - Waste handling - Decontamination - Remedial system installation - Monitoring activities - PSH removal
Technician I (T1) Typically requires a high school diploma. Entry level position, under close supervision. Performs routine labor tasks related to on-site installation, maintenance and repair of machinery, and equipment. Performs routine tasks such as soil and groundwater sampling, bailing wells, etc.	 Field work preparation and planning Operation and maintenance of equipment Well development Waste handling Decontamination Remedial system installation Monitoring activities PSH removal
Construction Foreman III (C3) Typically requires an Associate degree, 5-8 years experience, A and B License (under Subchapter I). Work includes on-site supervision and job foreman, oversees construction activities such as tank removals, installations, and repairs (must be present on-site during all critical junctures). Ensures compliance of field service operations within OSHA safety standards.	- On-site supervision - Remove UST systems - Remedial system installation - Safety health monitoring (on-site) - PSH removal - Backfilling
Construction Foreman II (C2) Typically requires A high school diploma, 3-5 years experience, A or B License (under Subchapter I).	 Remove UST systems Backfilling PSH removal Safety health monitoring (on-site)
Construction Foreman I (C1) Typically requires a high school diploma, 2-4 years experience, B License, trainee.	Remove UST systemsPSH removalSafety health monitoring (on-site)

Personnel and Qualifications	Task Description
Operator III (O3) Typically requires high school diploma. Requires 3-5 years experience. Works under appropriate supervision. Certified to operate heavy equipment, if applicable. Supervises manual laborers working under him/her. Makes field decisions concerning construction finish and final improvements.	Field contractor supervisionOperates heavy equipmentBackfilling
Operator II (O2) Typically requires high school diploma. Requires 2-4 years experience. Operates light to heavy equipment, such as backhoe, loaders, etc. Works under appropriate supervision.	- Operates light to heavy equipment - Backfilling
Operator I (O1) Requires 0-3 years experience. Operates light equipment. Works under appropriate supervision.	- Operates light equipment - Backfilling
Drafts Person II (D2) Typically requires high school diploma. Requires 4-8 years experience or two years related college and 1 year of experience. Generally requires a Technical Drawing Certificate, and advanced drafting skills such as Computer Assisted Design operations.	Advanced draftingCAD workCartography
Drafts Person I (D1) Typically requires high school diploma. Requires 0-4 years experience and generally requires a Technical Drawing Certificate. Performs entry to mid-level drafting, such as minor edits to existing drawings using Computer Assisted Design and/or Board.	- Mid-level drafting - CAD work
Laborer III (L3) Requires 2-4 years experience. Works under direct supervision. Performs manual labor, and may operate company-owned or rented equipment. Helps maintain equipment and machinery. May assist in supervising Laborers I and II.	- Maintains equipment and machinery - Operates equipment - Laborer I & II supervision
Laborer II (L2) Requires 1-3 years experience. Works under direct supervision. Performs manual labor, and may operate company-owned or rented equipment. Helps maintain equipment and machinery.	- Maintains equipment and machinery - Operates equipment - Laborer I & II supervision - Hand digging with shovels
Laborer I (L1) Entry level. Works under direct supervision. Performs manual labor (hand digging with shovels, etc.)	Maintains equipment and machineryOperates equipmentHand digging with shovels

Personnel and Qualifications	Task Description
Word Processor (WP) Operates computer for word processing, spreadsheets, and statistical typing, correspondence, report generation, etc. Higher billing rates imply experienced, efficient work. Longer technical reports would incur more hours billed than short reports.	SpreadsheetsReport generationWord processing
Clerical (CL) General office work, typing and filing.	TypingFilingGeneral secretarialDocument reproduction

The below summarizes the average and maximum reimbursable charges for the preparation of a corrective action plan. The summary is provided for both soils only contamination and soil and groundwater contamination. The below summary is for instances where no off-site migration of the contamination has occurred. A 25 percent increase will be allowed for sites with off-site contamination.

Soil only (no off-site migration)

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Assoc. Engineer	Mgmt/Rpt Prep/Rpt Rev.	13	\$75.00	\$85.00	\$975.00	\$1,105.00
Project Manager	Mgmt/Rpt Rev.	3	\$70.00	\$80.00	\$210.00	\$240.00
Staff Engineer	Mgmt/Rpt Prep/Rpt Rev.	13	\$65.00	\$70.00	\$845.00	\$910.00
Drafts Person	Report Preparation	6	\$40.00	\$45.00	\$240.00	\$270.00
Word Processor	Report Preparation	5	\$30.00	\$35.00	\$150.00	\$175.00
Total		40			\$2,420.00	\$2,700.00

Soil and Ground Water (no off-site migration)

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour		Total Maximum
Assoc. Engineer Project Manager Staff Engineer Drafts Person Word Processor Total	Mgmt/Rpt Prep/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Report Preparation Report Preparation	36 3 22 30 12 	\$75.00 \$70.00 \$65.00 \$40.00 \$30.00	\$85.00 \$80.00 \$70.00 \$45.00 \$35.00	\$2,700.00 \$210.00 \$1,430.00 \$1,200.00 \$360.00 \$5,900.00	\$3,060.00 \$240.00 \$1,540.00 \$1,350.00 \$420.00 \$6,610.00

Notes:

- 1. Costs include a complete corrective action plan. Including at minimum, maps and preliminary design drawings (to scale). This cost does not include "as built" drawings.
- 2. Slug and Bail Test and Aquifer Pumping Test Costs are not included in these costs.
- 3. Justification should be included for all corrective action plans over the costs shown.
- 4. The rate reimbursable for review by the project manager and/or principal will be at the project manager rate.
- 5. Reimbursement will not be made for a remedial action plan for soil only cases where the plan only entails over-excavation and disposal of the soils.

The below summarizes the average and maximum reimbursable charges for the preparation of a Site Assessment plan.

Site Assessment - (4) Wells at 25 Feet

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Principal Project Manager Staff Eng./Geologist Technician II Drafts Person I Word Processor Total	Mgmt/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Field/Rpt Prep. Field Report Preparation Report Preparation	1 10 34 15 12 8	\$115.00 \$70.00 \$65.00 \$40.00 \$40.00 \$30.00	\$130.00 \$80.00 \$70.00 \$45.00 \$45.00 \$35.00	\$115.00 \$700.00 \$2,210.00 \$600.00 \$480.00 \$240.00 \$4,345.00	\$130.00 \$800.00 \$2,380.00 \$675.00 \$540.00 \$280.00 \$4,805.00

Site Assessment - (7) Wells at 25 Feet

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Principal Project Manager Staff Eng./Geologist Technician II Drafts Person I Word Processor Total	Mgmt/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Field/Rpt Prep. Field Report Preparation Report Preparation	1 10 44 25 12 8 	\$115.00 \$70.00 \$65.00 \$40.00 \$40.00 \$30.00	\$130.00 \$80.00 \$70.00 \$45.00 \$45.00 \$35.00	\$115.00 \$700.00 \$2,860.00 \$1,000.00 \$480.00 \$240.00 \$5,395.00	\$130.00 \$800.00 \$3,080.00 \$1,125.00 \$540.00 \$280.00 \$5,955.00

Soil Boring and Monitor Well Installation (total price per foot)

Well Diameter and Depth	Sand/Silt	Clay	Limestone	Sand/Silt Per Well	Clay Per Well	Lime Stone Per Well
2" Diameter - 25 Feet	\$36.00	\$36.00	\$47.00	\$900.00	\$900.00	\$1,175.00
2" Diameter - 50 Feet	\$47.00	\$47.00	\$55.00	\$2,350.00	\$2,350.00	\$2,750.00
4" Diameter - 25 Feet	\$43.00	\$43.00	\$51.00	\$1,075.00	\$1,075.00	\$1,275.00
4" Diameter - 50 Feet 4" Diameter - 100 Feet	\$58.00 \$60.00	\$58.00 \$60.00	\$61.00 \$60.00	\$2,900.00 \$6,000.00	\$2,900.00 \$6,000.00	\$3,050.00 \$6,000.00
6" Diameter -100 Feet	\$69.00	\$69.00	\$69.00	\$6,900.00	\$6,900.00	\$6,900.00

Soil boring includes labor, materials and equipment rentals (including concrete coring, concrete pad, and manhole covers).

Well Costs include all soil boring costs, plus any additional well completion costs (including bentonite pellets and PVC casing.

Explanation should be provided for the use of stainless steel casing and stabilizers.

Equipment Rental

Equipment	Time Period (Days)	Number	Rate	4 - Wells per (2 days)	7 - Wells per (3-Days)
Portable Gas Meter	2	1	\$75.00	\$150.00	\$225.00
Combustible Gas Meter	2	1	\$25.00	\$50.00	\$75.00
Generator	2	1	\$50.00	\$100.00	\$150.00
Interface Probe	2	1	\$45.00	\$80.00	\$120.00
Equipment Vehicle	2	1	\$45.00	\$90.00	\$135.00
Barricades	2	10	\$1.00	\$20.00	\$30.00
Steam Cleaner	2	1	\$75.00	\$150.00	\$225.00
Protective Clothes	Each/Per Day	3	\$25.00	\$150.00	\$225.00
Bailers	N/A	5	\$8.00	\$80.00	\$120.00
Site Safety Plan	N/A	1	\$100.00	\$100.00	\$100.00
Miscellaneous	N/A	N/A	\$50.00	\$50.00	\$100.00
Total				\$1,020.00	\$1,505.00

Equipment rental should be consultant equipment related to the site assessment. The above costs do not include lab analysis, waste disposal and surveying the monitor wells. The above costs do include the costs for sample collection and water well inventory.

Summary- Site Assessment (4 Wells)

Well Diameter and Depth		Boring Sand	8	Boring Limestone	Equipment	Total Sand	Total Clay	Total Limestone
2" Dia 25 Ft.	\$4,345.00	\$3,600.00	\$3,600.00	\$4,700.00	\$1,020.00	\$8.965.00	\$8.965.00	\$10,065.00
2" Dia 50 Ft.	\$4,345.00	\$9,400.00	\$9,400.00	\$11,000.00	\$1,020.00	\$14,765.00	\$14,765.00	\$16,365.00
4" Dia 25 Ft.	\$4,345.00	\$4,300.00	\$4,300.00	\$5,100.00	\$1,020.00	\$9,665.00	\$9,665.00	\$10,465.00
4" Dia 50 Ft.	\$4,345.00	\$11,600.00	\$11,600.00	\$12,200.00	\$1,020.00	\$16,965.00	\$16,965.00	\$17,565.00
4" Dia100 Ft.	\$4,345.00	\$24,000.00	\$24,000.00	\$24,000.00	\$1,020.00	\$29,365.00	\$29,365.00	\$29,365.00
6" Dia100 Ft.	\$4,345.00	\$27,600.00	\$27,600.00	\$27,600.00	\$1,020.00	\$32,965.00	\$32,965.00	\$32,965.00

Summary- Site Assessment (7 Wells)

Well Diameter and Depth	Personnel	Boring Sand	8	Boring Limestone	Equipment	Total Sand	Total Clay	Total Limestone
2" Dia 25 Ft.	\$5,395.00	\$6,300.00	\$6,300.00	\$8,225.00	\$1,505.00	\$13,200.00	\$13,200.00	\$15,125.00
2" Dia 50 Ft.	\$5,395.00	\$16,450.00	\$16,450.00	\$19,250.00	\$1,505.00	\$23,350.00	\$23,350.00	\$26,150.00
4" Dia 25 Ft.	\$5,395.00	\$7,525.00	\$7,525.00	\$8,925.00	\$1,505.00	\$14,425.00	\$14,425.00	\$15,825.00
4" Dia 50 Ft.	\$5,395.00	\$20,300.00	\$20,300.00	\$21,350.00	\$1,505.00	\$27,206.00	\$27,206.00	\$28,250.00
4" Dia100 Ft.	\$5,395.00	\$42,000.00	\$42,000.00	\$42,000.00	\$1,505.00	\$48,900.00	\$48,900.00	\$48,900.00
6" Dia100 Ft.	\$5,395.00	\$48,300.00	\$48,300.00	\$48,300.00	\$1,505.00	\$55,200.00	\$55,200.00	\$55,200.00

The below summarizes the average and maximum reimbursable charges for the preparation of site closure.

Site Closure-Groundwater Extraction System (4 Wells)

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Principal Project Manager Field Engineer Drafts Person II Technician II Word Processor Laborer I Total	Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Report Preparation Field	1 8 22 2 2 20 5 25 83	\$115.00 \$70.00 \$60.00 \$45.00 \$40.00 \$30.00 \$15.00	\$130.00 \$80.00 \$65.00 \$50.00 \$45.00 \$35.00 \$20.00	\$115.00 \$560.00 \$1,320.00 \$90.00 \$800.00 \$150.00 \$375.00	\$130.00 \$640.00 \$1,430.00 \$100.00 \$900.00 \$175.00 \$500.00

No. of total hours should increase by 25 percent for each additional 4 wells on-site.

Site Closure-Vapor Extraction System

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Principal Project Manager Field Engineer Drafts Person II Technician II Word Processor Laborer I Total	Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Mgmt/Rpt Prep/Rpt Rev. Report Preparation Field	1 8 22 2 10 5 25	\$115.00 \$70.00 \$60.00 \$45.00 \$40.00 \$30.00 \$15.00	\$130.00 \$80.00 \$65.00 \$50.00 \$45.00 \$35.00 \$20.00	\$115.00 \$560.00 \$1,320.00 \$90.00 \$400.00 \$150.00 \$375.00	\$130.00 \$640.00 \$1,430.00 \$100.00 \$450.00 \$175.00 \$500.00 \$3,425.00

Item	Unit	Cost
Plug and Cap Monitor Wells	Each/See Note B	\$250.00
Removal of Remediation Equipment (includes Demobilization)	Lump Sum	\$500.00
Material Fill-Excavation	Per Cubic Yard	\$9.50
Material Resurface Excavation	Per Square Foot	\$3.00
Disposal of Contaminated Material	See Note A	

Note A - See Costs for Waste Hauling and Disposal

Note B - The cost to plug and cap monitor wells may vary depending on the method used. Additional costs may be reimbursable depending on the method used. The method used to plug and cap wells must be fully explained in order for additional costs to be considered for reimbursement.

Example:

Assume that 4 wells are plugged and approximately 6 sq. ft. of resurfacing is needed for each well. The closure is of ground water wells.

Site Closure	Aver.Rate	Unit	Cost	Max. Rate	Unit	Cost
Material Resurfacing Rate Per Sq. Ft. Plug Wells Remove Equipment (lump) Personnel Cost	\$3.00 \$250.00 \$500.00	24 4	\$72.00 \$1,000.00 \$500.00 \$3,410.00	\$3.00 \$250.00 \$500.00	24 4	\$72.00 \$1,000.00 \$500.00 \$3,875.00
Total			\$4,982.00			\$5,447.00

Example:

Assume that 4 wells are plugged and approximately 6 sq. ft. of resurfacing is needed for each well. The closure is of ground vapor wells.

Site Closure	Aver.Rate	Unit	Cost	Max. Rate	Unit	Cost
Material Resurfacing Rate Per Sq. Ft. Plug Wells Remove Equipment (lump) Personnel Cost	\$3.00 \$250.00 \$500.00	24 4	\$72.00 \$1,000.00 \$500.00 \$3,010.00	\$3.00 \$250.00 \$500.00	24 4	\$72.00 \$1,000.00 \$500.00 \$3,425.00
Total			\$4,582.00			\$4,997.00

The below guidelines show the time length of the test as well as list the titles of people who may be present during the test and provide a general description of the work being performed. The test is normally a one-day test. The costs shown are per test performed. The price shown is for personnel and equipment used in the test.

Personnel - Six (6) Hour Test

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Senior Engineer/Principal Staff Engineer/Project Manager Associate Engineer Technician II Drafts Person I Word Processor	Management Field Report Field Drafting Data Entry Clerical	1 8 8 8 8 3 1 2	\$115.00 \$85.00 \$75.00 \$40.00 \$40.00 \$30.00 \$25.00	\$130.00 \$95.00 \$95.00 \$45.00 \$45.00 \$35.00 \$30.00	\$115.00 \$680.00 \$600.00 \$320.00 \$120.00 \$30.00 \$50.00	\$130.00 \$760.00 \$760.00 \$360.00 \$135.00 \$35.00 \$60.00
 Total		31			\$1,915.00	\$2,240.00

Personnel - Twelve (12) Hour Test

Title	Duty	Hours	Average Rate Per Hour	Max. Rate Per Hour	Total Average	Total Maximum
Senior Engineer/Principal Staff Engineer/Project Manager Associate Engineer Technician II Drafts Person I Word Processor	Management Field Report Field Drafting Data Entry Clerical	2 14 12 14 4 1 3	\$115.00 \$85.00 \$75.00 \$40.00 \$40.00 \$30.00 \$25.00	\$130.00 \$95.00 \$95.00 \$45.00 \$45.00 \$35.00 \$30.00	\$230.00 \$1,190.00 \$900.00 \$560.00 \$160.00 \$30.00 \$75.00	\$260.00 \$1,330.00 \$1,140.00 \$630.00 \$180.00 \$35.00 \$90.00
Total		50			\$3,145.00	\$3,665.00

General Equipment Used and Rental Rate (Per Day)

Equipment	Rate/Each	Rate (1 Day)	Rate (2 Days)
Data Logger	\$125.00	\$125.00	\$250.00
Interface Probe	\$40.00	\$40.00	\$80.00
Generator	\$50.00	\$50.00	\$100.00
Equipment Vehicle	\$45.00	\$45.00	\$90.00
Miscellaneous	\$100.00	\$100.00	\$200.00
		\$360.00	\$720.00

Summary

Summary	Total Hours	Personnel	Equipment	Total
Six (6) Hour Test	31	\$1,915.00	\$360.00	\$2,275.00
Twelve (12) Hour Test	50	\$3,145.00	\$720.00	\$3,865.00

The below guidelines show the time length of the system installation, the people who may be present during the installation and provide a general description of the work bein g performed. The costs are summarized based on normal system installation costs for a retail facility with one (1) 20 foot deep extraction well. Cover material is 6" concrete and carbon treatment for remediation.

Personnel

Title	Duty	Hours	Average Rate Per Hour	Max.Rate/Hr Allowable	Total Average	Total Max. Allowable
Senior Engineer	Report/Review	3	\$85.00	\$95.00	\$255.00	\$285.00
Project Manager	Field/Report Rev.	15	\$70.00	\$80.00	\$1,050.00	\$1,200.00
Staff Engineer	Field/Report Rev.	15	\$65.00	\$70.00	\$975.00	\$1,050.00
Drafts Person	Report/Review	1	\$40.00	\$45.00	\$40.00	\$45.00
Technician I	Field/Report Rev.	30	\$35.00	\$40.00	\$1,050.00	\$1,200.00
Word Processor	Report/Review	3	\$30.00	\$35.00	\$90.00	\$105.00
Total		67			\$3,460.00	\$3,885.00

Soil Vapor Extraction System - System Setup costs

Equipment	Quantity	Rate/Each	Total
Regenerative Blower (1.5 hp)	Cost - Each	\$1,000.00	\$1,000.00
Gauges	Lump Sum (for 3)	\$150.00	\$150.00
Plumbing Supplies	Lump Sum	\$830.00	\$830.00
Fence compound	Lump Sum	\$850.00	\$850.00
Product Storage Tank(s)	Each-200 Gallon	\$250.00	\$250.00
Carbon Canister	Per Month	\$500.00	\$500.00
Miscellaneous	Lump Sum	\$50.00	\$50.00
	-		
Subtotal			\$3,630.00

Soil Vapor Extraction System - Other costs

Item	Per Unit	Unit cost	Setup	
Trenching	Per Foot/100 Cu. Ft.	\$15.00	\$1,500.00	
Resurfacing	Per Foot/100 Sq. Ft.	\$6.00	\$600.00	
Plumbing	Per Foot/100 Ft.	\$15.00	\$1,500.00	
Electrical Costs	Utilities	Lump Sum	\$210.00	
Subtotal			\$3,810.00	

Summary

Summary	Total Hours	Personnel	Equipment	Installation	Total
Soil Vapor Extraction (System Setup)	67	\$3,460.00	\$3,630.00	\$3,810.00	\$10,900.00

The above costs do not include costs for electrical work.

The below guidelines show the time length of the test as well as summarizes the titles of people who may be present during the test and provide a general description of the work being performed. The test normally is a one-day test. The costs shown are per test performed. The price shown is for personnel and equipment used in the test as shown below.

Personnel - 12 Hour Test

Title	Duty	Hours	Average Rate Per Hour	Max.Rate/Hr Allowable	Total Average	Total Max. Allowable
Senior Engineer Associate Engineer	Rpt Prep/Rpt Rev Field	3 15	\$85.00 \$75.00	\$95.00 \$85.00	\$255.00 \$1,125.00	\$285.00 \$1,275.00
Technician III	Field	14	\$45.00	\$50.00	\$630.00	\$700.00
Drafts Person I Technician II	Rpt Prep Field	4 15	\$40.00 \$40.00	\$45.00 \$45.00	\$160.00 \$600.00	\$180.00 \$675.00
Word Processor/Clerical	Rpt Prep	1	\$30.00	\$35.00	\$30.00	\$35.00
Total		52			\$2,800.00	\$3,150.00

Personnel - 24 Hour Test

Title	Duty	Hours	Average Rate Per Hour	Max.Rate/Hr Allowable	Total Average	Total Max. Allowable
Senior Engineer	Rpt Prep/Rpt Rev	3	\$85.00	\$95.00	\$255.00	\$285.00
Associate Engineer	Field	30	\$75.00	\$85.00	\$2,250.00	\$2,550.00
Technician III	Field	28	\$45.00	\$50.00	\$1,260.00	\$1,400.00
Drafts Person I	Rpt Prep	4	\$40.00	\$45.00	\$160.00	\$180.00
Technician II	Field	15	\$40.00	\$45.00	\$600.00	\$675.00
Word Processor/Clerical	Rpt Prep	1	\$30.00	\$35.00	\$30.00	\$35.00
Total		81			\$4,555.00	\$5,125.00

Soil Vapor Extraction System - System Setup costs

Equipment	Quantity	Rate/Each	Total
Portable Gas Monitor	1	\$75.00	\$75.00
(OVM METER)			
Gages	3	\$75.00	\$225.00
Data Logger	1	\$125.00	\$125.00
Generator	1	\$75.00	\$75.00
Equipment Vehicle	1	\$45.00	\$45.00
Carbon Canister	1	\$500.00	\$500.00
Regenerative blower (1.5 hp.)	1	\$100.00	\$100.00
Miscellaneous		\$50.00	\$50.00
Subtotal			\$1,195.00

Summary	Total Hours	Personnel	Equipment	Total
Soil Vapor Extraction Test (12 Hours)	52	\$2,800.00	\$1,195.00	\$3,995.00
Soil Vapor Extraction Test (24 Hours)	81	\$4,555.00	\$1,195.00	\$5,750.00

Effective Date

This section is effective for tanks removed prior to March 12, 1993.

Permits

Permits and Utility Clearances - The number and types of permits may vary for each sit e depending on the city and/or county regulations. Permits will be reimbursed at cost wit h receipts. The number of hours needed to complete the task should be approximately 4-8 hours. The personnel rate range should be \$40.00 - \$50.00 per hour. If any higher personnel is used a full explanation should be provided for the rate.

Various Permits Used in Remediation Activities

Construction (includes inspections), Fire Marshall Permit, Special Tank Removal Permit, Over-Sized Load Permit, Waste Disposal Permit, Utility Clearances (usually no charge).

Tank Removal Costs

Item	2" Asphalt	6" Concrete	Native Soil
Remove Pavement Over UST:			
Average Rate (sq.ft)	\$2.50	\$3.25	\$0.00
Maximum Rate	\$3.50	\$5.50	\$0.00
Pavement/Cover Resurfacing:			
Average Rate (sq.ft)	\$3.00	\$3.50	\$0.00
Maximum Rate	\$3.50	\$4.25	\$0.00

Tank Removal

Item	Site A 1-1000		Site C 3-10,000
Average Cost	\$1,071.00	\$3,719.00	\$3,824.00
Price Per Gallon	\$1.10	\$0.16	\$0.13
Maximum Cost	\$1,412.00	\$4,852.00	\$4,957.00
Price Per Gallon	\$1.40	\$0.20	\$0.17

Excavate Tank-hold, Replace Backfill Material and Compaction (per cubic yard)

Item		Regular Material Max. Rate		Select Fill Max. Rate
Excavate Tank-hold	\$7.00	\$9.00	\$7.00	\$9.00
Material	\$9.50	\$11.00	\$11.50	\$14.00
Compaction	\$7.00	\$9.00	\$9.00	\$12.00

Personnel - for Tank removal

Title	Duty	Hours	Average Rate Per Hour	Max.Rate/Hr Allowable	Total Average	Total Max.
Field Engineer Project Manager Technician III Word Processor	Field/Report Field/Report Rev. Field/Report Rev. Report/Review	16 3 15 3	\$60.00 \$70.00 \$45.00 \$30.00	\$65.00 \$80.00 \$50.00 \$35.00	\$960.00 \$210.00 \$675.00 \$90.00	\$1,040.00 \$240.00 \$750.00 \$105.00
Drafts Person I Total	Report/Review	3 40	\$40.00	\$45.00	\$120.00 \$2,055.00	\$135.00 \$2,270.00

Personnel

- Personnel for tank removal are for sampling, some field hours and report preparation.

Select Fill

- An explanation should be provided for the use of select backfill.

Compaction Rate

- Compaction rate includes in-place density test.

Tank Removal

- Tank removal costs should include all costs for tank preparation, removal of tank contents, disposal and transportation. The tank-hold boundary is estimated to be three (3) feet beyond the tank. Backfill is estimated to be loose yards (not compacted). The backfill used is estimated by multiplying the volume by 1.3.

Example:

For a 1000 gallon tank removal assume that the tank hold size is: 17 ft. long X 9 ft. wide X 8 ft. deep. Assume the depth of cover on top of tank is 3 ft. The amount of material excavated is assumed to be the volume of the tank hold and the replacement backfill needed is assumed to be measured in loose yards. The backfill is estimated by multiplying the volume by 1.3.

Item	Average Rate 2" Asphalt	(Sq.Ft)	Average Cost	Maximum Rate 2" Asphalt	(Sq.Ft)	Maximum Cost
Removal of Pavement (Sq.Ft.) Pavement Resurface (Sq.Ft.) Tank Removal per Gallon	\$2.50 \$3.00 \$1.10	153 153 1,000	\$382.50 \$459.00 \$1,100.00	\$3.50 \$3.50 \$1.40	153 153 1,000	\$535.50 \$535.50 \$1,400.00
		Volume (Cu. Yds)			Volume (Cu. Yds)	
Excavate Material-Regular Compaction Personnel Total	\$7.00 \$9.50 \$7.00	45 59 59	\$315.00 \$560.50 \$413.00 \$2,055.00 \$5,285.00	\$9.00 \$11.00 \$9.00	45 59 59	\$405.00 \$649.00 \$531.00 \$2,270.00 \$6,326.00

Example:

For 3-8000 gallon tank removal assume that the tank hold size is: 27 ft. long X 33 ft. wide X 12 ft. deep.

Assume the depth of cover on top of tank is 3 ft. The amount of material excavated is assumed to be the volume of the tank hold and the replacement backfill needed is assumed to be measured in loose yards. The backfill is estimated by multiplying the volume by 1.3.

Item	Average Rate 2" Asphalt	(Sq.Ft)	Average Cost	Max.Rate 2'' Asphalt	(Sq.Ft.)	Max. Cost
Removal of Pavement (Sq.Ft.) Pavement Resurface (Sq.Ft.) Tank Removal per Gallon	\$2.50 \$3.00 \$0.16	891 891 24,000	\$2,227.50 \$2,673.00 \$3,840.00	\$3.50 \$3.50 \$0.20	891 891 24,000	\$3,118.50 \$3,118.50 \$4,800.00
Tank Removal per Ganon	φ0.10	Volume (Cu. Yds)	\$3,040.00	ψ0.20	Volume (Cu. Yds)	ψ-1,000.00
Excavate Material-Regular	\$7.00 \$9.50	396 515	\$2,772.00 \$4,892.50	\$9.00 \$11.00	396 515	\$3,564.00 \$5,665.00
Compaction Personnel	\$7.00	515	\$3,605.00 \$2,055.00	\$9.00	515	\$4,635.00 \$2,270.00
Total Costs			\$22,065.00			\$27,177.00

Example:

For 3-10,000 gallon tank removal assume that the tank hold size is: 39 ft. long X 23 ft. wide X 14 ft. deep.

Assume the depth of cover on top of tank is 3 ft. The amount of material excavated is assumed to be the volume of the tank hold and the replacement backfill needed is assumed to be measured in loose yards. The backfill is estimated by multiplying the volume by 1.3.

Item	Average Rate 2" Asphalt	(Sq.Ft.)	Average Cost	Max.Rate 2'' Asphalt	(Sq.Ft.)	Max. Cost
Removal of Pavement (Sq.Ft.)	\$2.50 \$3.00	897	\$2,242.50	\$3.50 \$3.50	897	\$3,139.50
Pavement Resurface (Sq.Ft.) Tank Removal per Gallon	\$0.13	897 30,000	\$2,691.00 \$3,900.00	\$0.17	897 30,000	\$3,139.50 \$5,100.00
		Volume (Cu. Yds)			Volume (Cu. Yds)	
Excavate	Φ7.00	4.55	#2.255.00	Φ0.00	465	Φ4.10 5 .00
Material-Regular Compaction	\$7.00 \$9.50	465 605	\$3,255.00 \$5,747.50	\$9.00 \$11.00	465 605	\$4,185.00 \$6,655.00
Personnel Costs	\$7.00	605	\$4.235.00 \$2,055.00	\$9.00	605	\$5,445.00 \$2,270.00
Total Costs			\$24,126.00			\$29,934.00

Effective Date

This section is effective for tanks removed on or after March 12, 1993.

A tank removal is defined as the physical removal of an underground storage tank from the subsurface. Tank removals including removal and replacement of surface material, excavation and disposal of backfill material, tank removal and disposal, backfilling and compaction of excavation, and any other activities typically associated with the tank removal process.

Reimbursement of tank removals shall be based on the volume of the tank removed and shall have a maximum reimbursement limit of \$8,000.00 per LPST site. For underground storage tanks having a volume of 5,000 gallons or less, the portion of reimburse ment costs or removal for each such tank is \$1,000.00. For underground storage tanks having a volume greater than 5,000 gallons, the portion of reimbursable costs of removal for each such tank is \$2,000.00.

Tank Volume (gallons)	Reimbursable Cost (per tank)	Total Maximum per LPST Site
5000 or less	\$1000.00	\$8,000.00
Greater than 5000	\$2000.00	\$8,000.00

The following is for the loading, hauling and disposal of various contaminated waste.

Contaminated Soil	Quantity	Price Per Cubic Yard
Loading and Hauling	Over 20 Cubic Yards	\$13.00
Loading and Hauling	20 Cubic Yards and less	\$15.00

Contaminated soil loading and hauling is the disposal price per cubic yard.

Liquid Disposal	Maximum Price
(Water and Phase-Separated Product)	\$68.00
Loading and Hauling (per hour) Disposal (per gallon)	\$00.40
Water containerization (per day)	\$35.00

Disposal of Contaminated Soil (Landfill)

Contaminated Soil Disposal is reimbursable at costs, with landfill invoices/receipts, plu s markup. Disposal costs per cubic yard range from \$2.00 to \$20.00, depending on the level of contamination.

Barrels - Reimbursable at cost with receipts. Costs range from \$15.00 to \$40.00 per barrel (depending on the content).

Lab fee for tests performed at the landfill for testing for contamination are reimbursable at cost with invoices/receipts.

Loading and hauling prices include labor and mileage. Class 1 soils may require additional travel which should be explained in detail.

The below guideline is for the waste treatment costs for contaminated waste.

Mobilization/Demobilization	Average	Maximum
Thermal Treatment	\$1,500.00	\$2,000.00
Bioremediation	\$500.00	\$500.00

Waste Treatment - Mobil(Portable) Thermal Treatment (Per Ton)	Average	Maximum
Sand/Silt	\$45.00	\$50.00
Clay	\$55.00	\$60.00
Limestone	\$50.00	\$55.00

Waste Treatment - Fixed Thermal Treatment (Per Ton)	Average	Maximum
Sand/Silt Clay	\$30.00 \$55.00	\$45.00 \$85.00
Limestone	\$50.00	\$70.00

Waste Treatment - Bioremediation (Per Ton)	Average	Maximum
Sand/Silt	\$35.00	\$40.00
Clay	\$30.00	\$35.00
Limestone	\$30.00	\$30.00

The above costs include allowances for personnel, materials, equipment, and collectin g samples for laboratory analysis. These costs **do not** include laboratory analysis.